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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,986	02/03/2004	Russell Hudyma	01641/100K021-US5	3566
7278	7590	06/07/2004	EXAMINER	
DARBY & DARBY P.C. P. O. BOX 5257 NEW YORK, NY 10150-5257			PRITCHETT, JOSHUA L	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/771,986	Applicant(s) HUDYMA, RUSSELL	
	Examiner Joshua L Pritchett	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2-04</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Shafer (US 2001/0043391).

Regarding claim 1, Shafer discloses a photolithographic reduction projection catadioptric objective with a beam path comprising a first group (G1) including an even number of at least four mirrors (M1-M4) and a second at least substantially dioptric optical group (G2) more imageward than the first optical group including a number of lenses (Fig. 4) and wherein the first optical group provides compensative axial color correction for the second optical group (para 0014). Shafer states that the “first optical group provides compensative aberrative correction for the second optical group.” “Compensative aberrative correction” is a broader limitation than the specific axial color correction claimed in claim 1, therefore Shafer anticipates the claim limitation.

Regarding claims 2, 9, 10, 14, 29 and 30, Shafer discloses wherein the numerical aperture is 0.75 or more (para. 0014).

Regarding claims 3, 7 and 15, Shafer discloses the first optical group producing an intermediate virtual image (Fig. 4; para. 0015).

Regarding claims 4, 11 and 16, Shafer discloses wherein the at least four mirror of the first optical group include a convex mirror arranged most imageward in the beam path of the objective, and wherein the second optical group receives a beam from the convex mirror (Fig. 4).

Regarding claims 5 and 17, Shafer discloses wherein optical surfaces of each mirror of the objective are at least sections of surfaces of revolution each having a common axis of symmetry (Fig. 4; para. 0015).

Regarding claims 6, 8, 12 and 18, Shafer discloses wherein the second optical group is configured for independent compensative lateral aberrative correction. Page 9 of the current application states, "Fig. 1 shows aperture stop AS in Group G2 placed in a quasi-symmetrical manner, allowing the lateral chromatic aberration to be at least nearly self corrected within group G2 itself." Shafer discloses an aperture stop (Fig. 4) and therefore would be capable of the claimed performance as claimed.

Regarding claim 13, Shafer discloses a photolithographic reduction projection catadioptric objective with a beam path comprising a first group (G1) including an even number of at least six mirrors (para 0056) and a second at least substantially dioptric optical group (G2) more imageward than the first optical group including a number of lenses (Fig. 4) and wherein the first optical group provides compensative axial color correction for the second optical group (para. 0014). Shafer states that the "first optical group provides compensative aberrative

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correction for the second optical group.” “Compensative aberrative correction” is a broader limitation than the specific axial color correction claimed in claim 1, therefore Shafer anticipates the claim limitation.

Regarding claim 19, Shafer discloses an unobscured system aperture (Fig. 4).

Regarding claim 20, Shafer discloses wherein the unobscured aperture is located within the second optical group (Fig. 4).

Regarding claim 21, Shafer discloses being devoid of any planar folding mirrors (para 0016).

Regarding claim 22, Shafer discloses wherein an optical beam incident at the first optical group is divergent after a most imageward mirror of the first optical group (Fig. 4).

Regarding claim 23, Shafer discloses a parallel axes of symmetry of curvatures of each optical element of the first and second optical groups, and wherein no more than three of the optical elements are cut to deviate in a substantially non-rotation symmetric form (Fig. 4).

Regarding claim 24, Shafer discloses in sequence a first catadioptric sub group for producing a real intermediate image (Fig. 4), a second sub group including catoptric components for producing a virtual image (para 0015) and the second at least substantially dioptric group for producing a real image (para 0018).

Regarding claim 25, Shafer discloses in sequence a first field lens sub group (Fig. 4), a second catadioptric sub group comprising one or more negative lenses and a concave mirror (Fig. 4), generating axial chromatic aberration, a third sub group including an odd number of catoptric components (Fig. 4) and a fourth positive lens group (para 0018).

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Regarding claim 26, Shafer discloses wherein the second optical group comprises a plurality of lenses, wherein a diameter of a beam incident upon each of the plurality of lenses is at least half a diameter of each lens (Fig. 4, para 0028).

Regarding claim 27, Shafer discloses wherein the objective is doubly telecentric (para 0023).

Regarding claim 28, Shafer discloses wherein optical paths of projected rays are redirected at each lens element of the second optical group at an angle of less than substantially 20 degrees (para 0048).


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L Pritchett whose telephone number is 571-272-2318. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLP 



**DREW A. DUNN**  
**SUPERVISORY PATENT EXAMINER**